



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,387	08/20/2004	Mario Engelmann	PC10373US	7211
7590	10/16/2008		EXAMINER	
Robert P Seitter RatnerPrestia One Westlakes, Berwyn, Suite 301 P O Box 980 Valley Forge, PA 19482-0980			MURALIDAR, RICHARD V	
			ART UNIT	PAPER NUMBER
			2838	
			MAIL DATE	
			10/16/2008	PAPER
			DELIVERY MODE	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/505,387	ENGELMANN ET AL.
	Examiner	Art Unit
	RICHARD V. MURALIDAR	2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 30 June 2008.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 13, 14, 16 and 19-25 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 13, 14, 16 and 19-25 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 08/20/2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

This action is in response to the reply dated 06/30/2008. Claims 1-12, 15, and 17-18 have been cancelled by the applicant. Independent claim 13 has been amended. Claims 13, 14, 16, and 19-25 are currently pending.

In responding to this Office action, applicants are reminded of the requirements of 37 CFR 1.111 and 1.119 that applicants specifically point out the specific distinctions believed to render the claims patentable over the references in presenting responsive arguments. See MPEP 714.02. **The support of any amendments made should also be specifically pointed out. See MPEP 2163.06.**

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the method step limitations recited in the claims must be shown as an appropriate flowchart or the feature(s) canceled from the claim(s). It is also recommended that the applicant include a drawing(s) showing the circuitry/hardware that this method is implemented on. No new matter should be entered. **Applicant's arguments refusing to submit new drawings are not persuasive, nor understood. There are only three drawings on record concerning the instant application. All three are charts. None of them show a flowchart, or a circuit to which the invention pertains. This examiner doubts one of ordinary skill in the art can readily ascertain anything from these drawings, except that it somehow concerns I_{MEAS}, I_{RMS}, etc. Additionally, having adequate drawings on record can only help the applicant by facilitating a more**

rigorous examination/search; as well as protect the applicant from future infringement by making it easy for future searches to readily ascertain the invention at a glance.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. **The objection to the drawings will not be held in abeyance.**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13, 14, 16, and 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menten [U.S. 5645352] in view of Furuya et al. [U.S. 6322166].

With respect to claim 13, Menten discloses a method for generating a corrected nominal current [col. 2 lines 50-60; col. 4 equation (2)] in a pulse-width-modulated current control [Fig. 2, PWM signal 10], wherein a measured current [col. 2 lines 24-27; col. 2 lines 57-60] is determined at a certain predetermined time during an actuation period [col. 3 lines 36-37] and a compensation [col. 2 lines 19-24] is executed by way of compensation variables in response to temperature and supply voltage [col. 2 lines 19-27; lines 45-60], which are added to the measured current so that the corrected nominal current is available for current control [col. 2 lines 45-60; col. 3 lines 36-44; col. 3 lines 67-col. 4 lines 1-5], and wherein the compensation variables are stored in a table [col. 3 lines 59-64; col. 4 lines 1-20] and an interpolation is carried out for temperatures lying between two table values and supply voltages lying between two table values in order to determine the compensation variable

The examiner notes that the requirement that the method be applied to *electronic brake control units of motor vehicles* represents an *intended use* of this particular method (and the subsequent hardware associated with it).

Menten and Furuya are analogous electronic controls for solenoid coil systems.

Menten discloses a circuit/method that applies to the control of an electromagnetic hydraulic regulating valve [col. 1 lines 9-17], but does not specifically disclose that the method is for use in brakes or that the compensation variables are

stored in a table and an interpolation is carried out for temperatures lying between two table values and supply voltages lying between two table values in order to determine the compensation variable.

Furuya discloses a solenoid valve control circuit/method for use in electronic brake control units [col. 1 lines 5-19] wherein the compensation variables are stored in a table [col. 3 lines 59-64; col. 4 lines 1-20] and an interpolation is carried out for temperatures lying between two table values [Fig. 17, col. 18 lines 21-28] and supply voltages lying between two table values [col. 17 lines 3-6] in order to determine the compensation variable [Figs. 17, and 18; all points are shown on all three curves Large, Medium, Small, for temperature and voltage for the range shown. One of ordinary skill in the art (first year engineering student) would certainly know how to interpolate/extrapolate a chart like this to find intervening values as well as values above or below the shown range. See Fig. 21 for discrete data points shown; where one of ordinary skill would find it useful to determine an interpolated value between, say, the **point A25C** and the point immediately below it, for the benefit of determining exactly what the current was doing at that fractional time increment

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Menton's temperature compensating means for electromagnetic hydraulic regulating valves with Furuya's solenoid valve control circuit/method used in electronic brake control units, since it is known that brake systems generate tremendous amounts of heat during normal operation, and that these types of control systems are temperature dependent [see Furuya col. 6 lines 49-56; Menten col. 1 lines

32-44], and that accurate temperature determination depends upon not only the temperature of the solenoid coil, but also the coil resistance, and the supply voltage [Menten col. 1 lines 50-59].

With respect to claim 14, Furuya discloses a method wherein the supply voltage dependency is compensated col. 17 lines 60-67 and col. 18 lines 1-5].

With respect to claim 16, Furuya discloses a method wherein several loads are driven, and the compensation variables are fixed individually for each load, in particular for each valve coil [col. 8 lines 37-49; col. 11 lines 5-15; col. 15 lines 42-52].

With respect to claim 19, Furuya discloses a method wherein an averaging operation is executed by way of the present nominal value and previous nominal values to compensate abrupt changes in nominal values [col. 15 lines 60-67 and col. 16 lines 1-35].

With respect to claim 20, Furuya discloses a method wherein the temperature is determined indirectly by way of the Duty Cycle adjusted by current control [col. 18 lines 6-15].

With respect to claim 21, Furuya discloses a method wherein the sum of the coil resistor and the resistor of the connected semiconductor component for driving the load is taken into consideration for the determination of temperature [col. 18 lines 6-15, the duty ratio from which temperature is determined is affected by both all resistances in the circuit, including the coil and the switch].

With respect to claim 22, Furuya discloses a method wherein the Duty Cycles of several PWM periods are averaged for temperature measurement or the determination

of the indirect temperature value [the duty cycle of gradient z encodes the temperature information within in, col. 15 lines 60-67 and col. 16 lines 1-35].

With respect to claim 23, Furuya discloses a method wherein the nominal resistance value of the coil is used at the presently measured or estimated temperature of the control unit for the average value of the indirectly determined temperature quantity directly after the switching on of the ignition, in particular after the ignition's restart [col. 14 lines 56-60; col. 19 lines 6-20].

With respect to claim 24, Furuya discloses a circuit arrangement for driving several inductive loads comprising a circuit for the PWM control of the load current, wherein the method as claimed in claim 13 is implemented as a program [Fig. 7, Fig. 9, Fig. 11, Fig. 16, Fig. 22, Fig. 25] in a microcomputer or microcomputer system [Fig. 1, control means] which is electrically connected to the PWM circuit.

With respect to claim 25, Furuya discloses a circuit arrangement for driving several inductive loads comprising a circuit for the PWM control of the load current, in particular according to claim 24, wherein the method as claimed in claim 13 is realized at least in part by digital logic [Fig. 1, the control means is a digital logic controller].

Response to Arguments

Applicant's arguments received 06/30/2008 have been considered but are unpersuasive. See claim 1 response above.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard V. Muralidar whose telephone number is 571-272-8933. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl D. Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Akm Enayet Ullah/
Supervisory Patent Examiner, Art
Unit 2838

/Richard V. Muralidhar/
Examiner, GAU 2838
10/13/2008